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PATENT

Serial No. 10/524,076

Amendment in Reply to Office Action mailed on May 24, 2006

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of recording marks representing data in an information layer of a record carrier ~~by~~, the method comprising the acts of:

irradiating the information layer ~~by means of a pulsed radiation beam, and~~

writing a mark ~~being written by~~ a sequence of one or more write pulses, said information layer having a phase reversibly changeable between a crystalline phase and an amorphous phase, characterized in that, ~~when a mark is recorded by a sequence of two or more write pulses, wherein~~ at least one of the write pulses in said sequence of two or more write pulses other than the a first write pulse in said sequence consists of n portions, n being an integer number larger than 1, the i -th portion having an

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i-th write power level, i being an integer number in the range between 1 and n, the i-th portion preceding the (i+1)-th portion, and ~~in that wherein~~ the i-th write power level is lower than the (i+1)-th write power level, the first write pulse having a constant power level.

Claim 2 (Canceled)

3. (Currently Amended) ~~A~~ The method as claimed in claim 1, wherein at least one of the write pulses in said sequence of two or more write pulses consists of n portions of substantially the same duration.

4. (Currently Amended) ~~A method as claimed in claim 1, wherein~~ of recording marks representing data in an information layer of a record carrier, the method comprising the acts of:

writing a mark by a sequence of one or more write pulses, said information layer having a phase reversibly changeable between a crystalline phase and an amorphous phase; and

irradiating the information layer is irradiated in between the

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sequences of one or more write pulses by a radiation beam having an erase power level, the erase power level being higher than ~~the~~ a first write power level in ~~the~~ a first portion of a write pulse of the one or more write pulses and being lower than ~~the~~ an n-th write power level in the a last portion of the write pulse.

5. (Currently Amended) A method of recording marks representing data in an information layer of a record carrier ~~by~~, the method comprising the acts of:

~~irradiating the information layer by means of a pulsed radiation beam, and~~

writing a mark being written by a sequence of one or more write pulses, said information layer having a phase reversibly changeable between a crystalline phase and an amorphous phase, characterized in that wherein at least one of the write pulses in said sequence of one or more write pulses comprises a front portion having a write power level which is a function of time, and ~~in that~~ wherein said write power level continuously increases.

6. (Currently Amended) A ~~The~~ method as claimed in claim 5,

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wherein the at least one of said at least one of the write pulses in said sequence of one or more write pulses also comprises a rear portion having a constant write power level, ~~which said constant write power level is being~~ higher than or equal to the highest write power level in the front portion.

7. (Currently Amended) A method ~~as claimed in claim 5, wherein~~ of recording marks representing data in an information layer of a record carrier, the method comprising the acts of:

writing a mark by a sequence of write pulses, said information layer having a phase reversibly changeable between a crystalline phase and an amorphous phase; and

irradiating the information layer is irradiated in between the sequences of one or more write pulses by a radiation beam having an erase power level, the erase power level being higher than the a lowest write power level in the front portion of a write pulse of the write pulses and being lower than the a highest write power level in the front portion of the write pulse.

8. (Currently Amended) A recording apparatus for recording

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marks representing data in an information layer of a record carrier by irradiating the information layer by means of a pulsed radiation beam, each mark being written by a sequence of one or more write pulses, said information layer having a phase reversibly changeable between a crystalline phase and an amorphous phase, the apparatus comprising:

a radiation source for providing the pulsed radiation beam,
and

a control unit operative for controlling the power of the pulsed radiation beam and for providing the sequences of write pulses for recording the marks, ~~characterized in that~~

wherein the control unit is operative for controlling the power of the pulsed radiation beam such that when a mark is recorded by a sequence of two or more write pulses, and wherein at least one of the write pulses in said sequence of two or more write pulses other than the a first write pulse in the sequence consists of n portions, n being an integer number larger than 1, the i-th portion having an i-th write power level, i being an integer number in the range between 1 and n, the i-th portion preceding the (i+1)-th portion, and the i-th write power level being lower than the

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(i+1)-th write power level, the first write pulse having a constant power level.

Claim 9 (Canceled)

10. (Currently Amended) A recording apparatus for recording marks representing data in an information layer of a record carrier by irradiating the information layer by means of a pulsed radiation beam, each mark being written by a sequence of one or more write pulses, said information layer having a phase reversibly changeable between a crystalline phase and an amorphous phase, the device comprising:

a radiation source for providing the pulsed radiation beam,
and

a control unit operative for controlling the power of the pulsed radiation beam and for providing the sequences of write pulses for recording the marks, ~~characterized in that wherein the~~ control unit is operative for controlling the power of the pulsed radiation beam such that at least one of the write pulses in said sequence of one or more write pulses comprises a front portion

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having a write power level which is a function of time and which write power level continuously increases.

11. (New) The method of claim 5, wherein said write power level continuously increases at least one of linearly and a higher-order function including a parabolic function or an exponential function.

12. (New) The recording apparatus of claim 10, wherein said write power level continuously increases at least one of linearly and a higher-order function including a parabolic function or an exponential function.

13. (New) A method of recording a mark on a record carrier comprising the act of irradiating the record carrier with a sequence of pulses for writing the mark, wherein the sequence of pulses includes at least one of continuously increasing pulse having an end portion with a constant level and a combination of a block-shaped pulse and a staircase-shaped pulse.

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14. (New) The method of claim 13, wherein the staircase-shaped pulse includes a last portion having a larger duration than a previous portion.

15. (New) The method of claim 13, wherein the staircase-shaped pulse includes a last portion having twice a duration of a previous portion and twice a level of the previous portion.

16. (New) The method of claim 13, wherein a first pulse of the sequence of pulses has a first part at a beginning of the first pulse with a write power level which is at least one above and below an erase power level used in between sequences of the pulses for erasing a previously recorded mark.

17. (New) A recording apparatus for recording a mark on a record carrier comprising means for irradiating the record carrier with a sequence of pulses for writing the mark, wherein the sequence of pulses includes at least one of continuously increasing pulse having an end portion with a constant level and a combination of a block-shaped pulse and a staircase-shaped pulse.

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18.(New) The recording apparatus of claim 17, wherein the staircase-shaped pulse includes a last portion having a larger duration than a previous portion.

19.(New) The recording apparatus of claim 17, wherein the staircase-shaped pulse includes a last portion having twice a duration of a previous portion and twice a level of the previous portion.

20.(New) The recording apparatus of claim 17, wherein a first pulse of the sequence of pulses has a first part at a beginning of the first pulse with a write power level which is at least one above and below an erase power level used in between sequences of the pulses for erasing a previously recorded mark.

21.(New) A recording apparatus for recording a mark on a record carrier comprising a source controlled to irradiate the record carrier with a sequence of pulses for writing the mark, wherein the sequence of pulses includes at least one of

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continuously increasing pulse having an end portion with a constant level and a combination of a block-shaped pulse and a staircase-shaped pulse.

22.(New) The recording apparatus of claim 21, wherein the staircase-shaped pulse includes a last portion having a larger duration than a previous portion.

23.(New) The recording apparatus of claim 21, wherein the staircase-shaped pulse includes a last portion having twice a duration of a previous portion and twice a level of the previous portion.

24.(New) The recording apparatus of claim 21, wherein a first pulse of the sequence of pulses has a first part at a beginning of the first pulse with a write power level which is at least one above and below an erase power level used in between sequences of the pulses for erasing a previously recorded mark.